## AMENDMENTS TO THE SPECIFICATION

Please amend the title to read: "METHOD FOR FORMING LED BY A SUBSTRATE REMOVAL PROCESS."

[0009] As aforementioned, the present invention provides a method for forming LED comprising the following steps. First, an LED epitaxial layer is formed on a provisional substrate. Then, the LED epitaxial layer is etched to form LED chips ~~by means of photolithography~~. A reflecting layer formed on the LED chips. Then, a metal layer formed on the reflecting layer by means of a chemical method or a physical method as permanent substrate. The provisional substrate is removed to expose surfaces of the LED chips. Pads are formed on the surfaces of the LED chips. Finally, the metal layer is separated to form individual LED chips by means of mechanical force.

[0010] The present invention also provides a method for forming LED comprising the following steps. First, an LED epitaxial layer is formed on a provisional substrate. Then, a reflecting layer is formed on the LED epitaxial layer. A metal layer is formed on the reflecting layer by means of a chemical method or a physical method as permanent substrate. Next, the LED epitaxial layer, the reflecting layer, and the metal layer are etched to form LED chips ~~by means of photolithography~~. The provisional substrate is removed to expose surfaces of the LED chips. Finally, pads are formed on the surfaces of the LED chips.

[0011] As aforementioned, in the present invention, the conductivity and cooling effect of the substrate is increased by replacing the conventional $Al_2O_3$ or SiC substrate with a metal substrate according to the present invention. Furthermore, the pads are formed on opposite sides, so only one pad needs to bond in package process and the bonding yield is increased. The LED is proper to operate with high current due to the well cooling effect of the metal layer, so the present invention can make high power LED. Moreover, a reflecting layer is formed on LED chip to guide the light of LED to emit outwards at the same direction, and the illumination of the LED is raised.

[0017] The essence of the present invention is to form a metal layer by a chemical method and a physical method, and the metal layer is employed as a permanent substrate to replace the $Al_2O_3$ or SiC substrate in the conventional arts. Accordingly, the conductivity and the cooling effect of substrate can be efficiently increased, and further the pads are formed on opposite side, so only one pad needs to bond in package process. Moreover, the LED having the metal substrate is a high power LED due to the metal substrate has well cooling effect and the LED can operated with high current. The chemical method and physical method mentioned above comprise electroplating, electroless plating, CVD (chemical vapor deposition), (PVD) physical vapor deposition (as evaporation or sputtering deposition), and so on. These methods can control the thickness of the metal substrate and do not need the polishing and cutting process, and hence the complexity of LED process is also reduced. Furthermore, a reflecting layer is formed between the metal layer and the LED chip (or the LED epitaxial layer) to efficiently guide the light emitted by the LED chip to the same (outward) direction for increasing the illumination of the LED.

[0019] FIG. 2A to FIG. 2D are schematic diagrams of the method for forming LED of a preferred embodiment in the present invention. As shown in FIG. 2A, an LED epitaxial layer 105 is formed on a provisional substrate 100. Then, LED chips 110 is formed by etching the LED epitaxial layer ~~with photolithography~~, as shown in FIG. 2B. The preferable etching method is dry etching. Next, a reflecting layer 120 and a metal layer 130 are formed on the LED chips in sequence, wherein the metal layer 130 is formed by electroplating. The thickness of the metal layer between the every two LED chips is 5-30μm for benefiting to separate the metal layer 130, as shown in FIG. 2C.

[0021] FIG. 3A to FIG. 3D are schematic diagrams of the method for forming LED of another preferred embodiment in the present invention. An LED epitaxial layer 105, a reflecting layer 120 and a metal layer 130 are formed on a provisional substrate 100 in sequence, wherein the metal layer 130 is formed by electroplating, as shown in FIG. 3A. Then, LED chips 110 is formed by etching the aforementioned structure ~~with photolithography~~, as shown in FIG. 3B.

[0022] Next, the aforementioned LED structure is adhered on a film ~~130~~150, and the provisional substrate is removing, as shown in FIG. 3C. Finally, pads 140 are formed on the exposed surfaces of the LED chips 110, as shown in FIG. 3D.

[0025] As aforementioned, the present invention provides a method for forming LED comprising the following steps. First, an LED epitaxial layer is formed on a provisional substrate. Then, the LED epitaxial layer is etched to form LED chips ~~by means of photolithography~~. A reflecting layer formed on the LED chips. Then, a metal layer formed on the reflecting layer by means of a chemical method or a physical method. The provisional substrate is removed to expose surfaces of the LED chips. Pads are formed on the surfaces of the LED chips. Finally, the metal layer is separated to form individual LED chips by means of mechanical force.

[0026] The present invention also provides a method for forming LED comprising the following steps. First, an LED epitaxial layer is formed on a provisional substrate. Then, a reflecting layer is formed on the LED epitaxial layer. A metal layer is formed on the reflecting layer by means of a chemical method or a physical method. Next, the LED epitaxial layer, the reflecting layer, and the metal layer are etched to form LED chips ~~by means of photolithography~~. The provisional substrate is removed to expose surfaces of the LED chips. Finally, pads are formed on the surfaces of the LED chips.

[0027] As aforementioned, in the present invention, the conductivity and cooling effect of the substrate is increased by replacing the conventional $Al_2O_3$ or SiC substrate with a metal substrate according to the present invention. Furthermore, the pads are formed on opposite sides, so only one pad needs to bond in package process and the bonding yield is increased. The LED is proper to operate with high current due to the well cooling effect of the metal layer, so the present invention can make high power LED. Moreover, a reflecting layer is formed on LED chip to guide the light of LED to emit outwards at the same direction, and the illumination of the LED is raised.

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